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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/508,778	05/15/2000	BENEDICT SEIFERT	3711-000105	1847
7590 05/18/2007 HARNESS DICKEY & PIERCE PO BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER FELTEN, DANIEL S	
			ART UNIT 3693	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/508,778	Applicant(s) SEIFERT ET AL.	
	Examiner Daniel S. Felten	Art Unit 3693	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed February 15, 2007 have been fully considered but they are not persuasive.

The Examiner disagrees with the applicant's assertion that the satisfaction density profiles taught in Lupien are not analogous to an array of coefficients (or matrix) representing a portion of a particular order to be satisfied. It is maintained that in the broadest reasonable interpretation, both the applicant's invention and Lupien use the notoriously old and well known combinatorics to process trading orders. It is maintained that Lupien's grid can be considered a combinatoric technique wherein a 2-dimensional array which combinations of price and size may be defined as coefficients that represent separate portions of a particular order (see Lupien, column 4, lines 5-24). It is also maintained that Lupien suggests that these non-ordered combinations, of price and size may be considered binomial coefficients used to determine the level of satisfaction between traders. Thus for the following reasons the rejection of the previous Office Action is maintained and provided again below for the applicant's convenience.

Claim Rejections. 35 USC §102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1-4,7-17,19-21,25,27-31,34-44,46-49,53,56-57 are rejected under 35 U.S.C. §102 as being anticipated by Lupien et al, U.S. Patent #5845266, as discussed below.

With regard to Claims 27,28,1, Lupien teaches a method, apparatus, and computer terminal comprising:

receiving from users orders each specifying a particular first resource ordered by a particular user and storing them as an array in a first storage means;

(Col. 6, lines 40-59)

processing said orders retrieved from said first storage means to calculate a set of coefficients each representing the proportion of a particular order that is to be satisfied; (Col. 6, lines 40-59)

optimizing the values of said coefficients with respect to at least one predetermined, adjustable constraint and at least one predetermined, adjustable criterion; (Col. 8, lines 16-26)

storing said optimized coefficient values in a second storage outputting the processed orders and their respective coefficients. (Col. 9, lines 9-16)

means; and

With regard to Claims 29 & 2, Lupien teaches a method and apparatus

wherein:

at least one constraint includes that the value of each of said coefficients is less than or equal to 1 and greater than or equal to 0. (Col. 6, lines 60-65)

With regard to Claims 30 & 3, Lupien teaches a method and apparatus

wherein:

a designated one of said users takes the opposite position to each other user order by agreeing to

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exchange a proportion of the ordered first resource for a second resource, where said proportion corresponds to the optimized coefficient for that order. (Col. 10, lines 57-67)

With regard to Claims 31 & 4, Lupien teaches a method and apparatus wherein:

one constraint includes that if all orders were to be completed, in proportion to their respective coefficients, the designated user's holdings arising from the processed orders would be only non-negative amounts of each resource, including after maturation of all simple derivatives and options to trade resources in the future. (Col. 5, line 66 - Col. 6, line 7; Col. 19, lines 4-14, discussing derivatives)

With regard to Claims 34 & 7, Lupien teaches a method and apparatus wherein:

said optimizing step includes maximizing the volume given by the sum of the absolute values of the components of all orders that are satisfied, partially or in full, in terms of a particular simple resource at a given exchange rate.

(Col. 15, line 61 - Col. 16, line 9; also see Table 1, where Market Order Situation is "none" under "Overlapping Limit Profiles".)

With regard to Claims 35-36 & 8-9, Lupien teaches a method and apparatus comprising:

successively applying respective criteria in a cascaded manner to obtain optimized values of said coefficient; and specifying the sequence of said cascaded criteria.

Lupien discusses applying multiple 'criteria affecting satisfaction density profile in great detail at (Col. 12, lines 62 - Col. 13, line 67).

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With regard to Claims 37 & 10, Lupien teaches a method and apparatus

comprising:

applying, in sequence, each one of a plurality of predefined linear programming routines, or convex programming routines, or standard combinatorial optimization techniques, to optimize said coefficients until one of the following events occurs: a specified maximum period of time lapses; an optimal solution is found.

(Col. 7, lines 24-28, describing "time in force", and Col. 14, lines 39-67, describing optimization approaches)

With regard to Claims 38 & 11, Lupien teaches a method and apparatus

wherein:

if a specified maximum period of time elapses before an optimal solution is found, a consistent sub-optimal solution is used as the optimized set of coefficient values. (Col. 14, lines 39-67, and Col. 16, line 25-30, describing a low- end threshold for optimization)

With regard to Claims 39 & 12, Lupien teaches a method and apparatus

wherein:

said processing step further comprises retrieving said orders from said second storage means in batches, and is followed by said optimizing step to obtain optimized coefficient values for said batch of orders. (Col. 4, lines 60-65)

With regard to Claims 40 & 13, Lupien teaches a method and apparatus wherein:

the end of a batch is determined by a preset interval of time since the start of that batch. (Col. 4, lines 60-65)

With regard to Claims 41 & 14, Lupien teaches a method and apparatus wherein:

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the end of a batch is determined by the total order value exceeding a threshold value. (Col. 11, lines 7-10)

With regard to Claims 42 & 15, Lupien teaches a method and apparatus comprising:
forwarding orders in one batch that are not satisfied, completely or partially, following the optimizing step, to be processed in the next batch.

(Col. 11, lines 10-16 and Figure #8, items 108-124)

With regard to Claims 43 & 16, Lupien teaches a method and apparatus comprising:
the step of removing orders from said second storage means that have not been satisfied, completely or partially, after a preset length of time from submission of those orders. (Col. 11, lines 10-16 and Figure #8, items 108-124)

With regard to Claims 44 & 17, Lupien teaches a method and apparatus wherein:
said preset length of time for each order is specified by the relevant user.

(Col. 7, lines 24-28, describing "time in force")

With regard to Claims 46 & 19, Lupien teaches a method and apparatus wherein:
at least one user order stored in said first storage means specifies a particular second resource offered in exchange for said first resource to define a resource flow.

This claim can be interpreted as trading in currency, which is expressly disclosed at (Col. 6, lines 2-7).

With regard to Claim 47 & 20, Lupien teaches a method and apparatus wherein:
at least one user order stored in said first storage means orders said first resource at a prevailing market exchange rate.

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This claim can be interpreted as trading in currency, which is expressly disclosed at (Col. 6, lines 2-7).

With regard to Claim 48 & 21, Lupien teaches a method and apparatus wherein: a resource in at least one order is a compound resource.

As defined by the accompanying glossary, a compound resource appears to be a buy&sell order of a security order. However, as mentioned at (Col. 6, lines 2-7), this system is designed to accommodate all kinds of orders and traded instruments.

With regard to Claim 49, Lupien teach a method further comprising:
communicating orders entered on a plurality of terminals to a central server for processing said orders, via a network. (Figure #1)

With regard to Claims 53 & 25, Lupien teaches a method and apparatus wherein:
said instruments being traded are financial, such as currencies, securities, and futures on the value of commodities. (Col. 6, lines 2-7).

With regard to Claim 56, Lupien teaches a method wherein:
a designated user receives a revenue limited by, or predetermined as, a fraction of the total traded volume. (Table 1, utilizing weighted volume in effecting price in satisfaction determinations)

With regard to Claims 57, Lupien teaches a method comprising:
controlling a process using the processed orders and their coefficients output in said outputting step. (Col. 9, lines 9-30)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-6,18,22-24,26,32-33,45,50-52,54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lupien, U.S. Patent #5845266.

Claim 32 & 5 recite a method wherein:

said optimizing step includes as one criterion maximizing the revenue of said designated user, in terms of a particular simple resource, based on an exchange rate.

Inherent to process of Lupien is revenue optimization, and is reflected in constraints placed in a density profile. Please see (Col. 17, line 43 - Col. 18, line 43), as to how the density profile can be manipulated. However, Lupien does not expressly teach maximization user revenue, based on an exchange rate. Official Notice is taken that increasing user revenue based on exchange rate variability is old and well known in the finance arts. As such, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to combine the teachings of Lupien, to include maximizing user revenue based on the exchange rate as criteria in effecting the coefficients. The motivation for such a combination is within the knowledge of one ordinarily skilled in the art, and is simply to extend the applicability of the trading constraint system by encouraging increased international trading and increased trading in currency.

Claims 33 & 6 recite a method wherein:

a third storage means is for storing an array of data representing the current exchange rate

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between each resource and at least one other resource, said method further comprising the step of retrieving exchange rate data from a third storage means for use in optimizing said coefficients.

Lupien does not expressly teach this limitation. As mentioned above, Official Notice is taken that increasing user revenue based on exchange rate variability is old and well known in the finance arts. Thus it would have been obvious to modify Lupien to store and retrieve exchange rate information in order to optimize coefficients when establishing a density profile. The motivation in modifying Lupien is again, simply encouraging international use of the system, and increased trading in currency.

With regard to Claims 52 and 24, Lupien does not expressly teach a method and apparatus comprising:

computing updated exchange rates based on the satisfied order flow and storing said updated exchange rates in said third storage means.

This claim is rejected as in the previous claim, however, in that updating exchange rate is the next logical step when using exchange rate to optimize the coefficients. That is to say, given that exchange rates are being used in the process, it would be obvious to update exchange rates because exchange rates are constantly fluctuating.

With regard to Claim 55, Lupien does not expressly teach a method comprising:

refunding a proportion of the value of an order accepted at greater than a prevailing exchange rate to the respective user; and

However Official Notice is taken that refunding value based on orders accepted greater than the exchange rate is old and well known in the art. Presuming that using exchange rates to optimize coefficients and increase revenue does just that, credit value can be returned. It would be obvious

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to one of ordinary skill in the art to modify Lupien to include refunding excess value of an order accepted at greater than a prevailing exchange rate. The motivation for such a modification is within the general knowledge to one of ordinary skill in the art, and is simply to encourage trading by refunding value to the traders.

With regard to Claim 45 & 18, Lupien does not expressly teach a method and apparatus comprising:

deleting from said second memory means unsatisfied orders at the request of a user.

Although Lupien describes an interface button allowing a user to quit an operating program at (Col. 7, lines 45-60), it does not expressly disclose the deletion aspect described above. However Official Notice is taken that the ability to delete or withdraw unmatched orders is old and well known in the financial arts. As such it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to modify Lupien to expressly allow deletion of unmatched orders. The motivation for such a modification is within the knowledge generally available to one of ordinary skill in the art, and is simply to all users to withdraw orders so as to rethink strategies, rather than be forced into accepting matching in subsequent processing.

With regard to Claim 51 & 23, Lupien does not expressly teach a method wherein: said communication is done by means of TCP/IP.

However Official Notice is taken that this communication protocol is very old and well known. As such, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lupien to include TCP/IP. The motivation for such a modification is simply to allow the system to be used over the Internet.

With regard to Claim 50 & 22, Lupien does not expressly teach a method and apparatus further

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comprising:

aggregating in a sub-server orders from users before communicating them to said central server.

However, there does not appear to be any methodology behind this technology choice, and as such, carries little patentable weight. Official Notice is taken that alternative system configurations are old and well known in the art. As such, it would be only an obvious modification to modify Lupien to include the above-described system configuration. The motivation for such a modification is simply to increase processing speed to whichever configuration is fastest.

With regard to Claims 54 & 26, Lupien does not expressly teach a method and apparatus comprising:

transmitting the result of said outputting step to a means for settlement of said orders.

However Official Notice is taken that settling matched orders is old and well known in the art.

As such it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to modify the teachings of Lupien to include outputting matched trades to settlement. The motivation for the modification is simply to encourage use in the system by making it easy to finalize trades through settlement. This fact is within the general knowledge of one ordinarily skilled in the art.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Felten whose telephone number is (571) 272-6742. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Kramer can be reached on (571) 272-6783. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Daniel S Felten

Examiner

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05/10/2007



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